What is claimed is:

1. An apparatus for transmitting an optical signal comprising:

an optical signal source configured to generate an optical signal;

a data modulator coupled to said optical signal source and configured to modulate data on said optical signal at a data modulation frequency; and

an amplitude modulator coupled to said optical signal source and configured to provide a periodic modulation of the intensity of said optical signal.

2. The apparatus of claim 1 wherein said data source is configured to modulate said data on said optical signal using a DPSK modulation format.

3. The apparatus of claim 1 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 20%.

4. The apparatus of claim 3 wherein said data source is configured to modulate said data on said optical signal using a DPSK modulation format.

5. The apparatus of claim 1 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 40%.

6. The apparatus of claim 1 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 60%.

7. The apparatus of claim 1 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 80%.

8. The apparatus of claim 1 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth equal to about 100%.

9. The apparatus of claim 1 wherein said amplitude modulator is coupled to said optical signal source through said data modulator.

10. The apparatus of claim 1 wherein said amplitude modulator is configured to impart said periodic modulation in response to a sinusoidal drive signal.

11. The apparatus of claim 1 wherein said periodic modulation is provided at an amplitude modulation frequency phase locked to said data modulation frequency.

12. The apparatus of claim 11 wherein said amplitude modulation frequency is equal to said data modulation frequency.

13. The apparatus of claim 1, wherein said data modulation frequency is established by a clock coupled to said amplitude modulator.

14. The apparatus of claim 1 wherein the optical signal source comprises a continuous-wave optical signal generator, wherein said data is provided to said data modulator by a data source coupled to said data modulator, and wherein said apparatus further comprises a clock for establishing said data modulation frequency.

15. The apparatus of claim 14, wherein said continuous-wave optical signal generator comprises a laser.

16. The apparatus of claim 1 wherein the amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal with a prescribed phase.

17. The apparatus of claim 16 further comprising an electrical variable-delay line for selectively varying the prescribed phase.

18. The apparatus of claim 17 wherein said electrical variable-delay line comprises a phase shifter.

19. The apparatus of claim 1, said apparatus further comprising means for selectively adjusting a depth of said periodic modulation of the intensity of said optical signal.

20. The apparatus of claim 1 further comprising a phase modulator configured to provide optical phase modulation to said optical signal.

21. The apparatus of claim 20 wherein said amplitude modulator is coupled to said data modulator through said phase modulator.

22. The apparatus of claim 20 wherein said phase modulator is configured to provide said optical phase modulation at a phase modulation frequency that is phase locked to said data modulation frequency.

23. The apparatus of claim 22 wherein said phase modulation frequency is equal to said data modulation frequency.

24. The apparatus of claim 22 further comprising a clock for establishing said data modulation frequency and said phase modulation frequency.

25. The apparatus of claim 20 said apparatus further comprising means for selectively adjusting a level of said optical phase modulation.

26. The apparatus of claim 20 further comprising an electrical variable-delay line for selectively varying the phase of said optical phase modulation provided by said phase modulator.

27. The apparatus of claim 26 wherein said electrical variable-delay line comprises a phase shifter.

28. The apparatus of claim 1 further comprising a polarization modulator coupled to said data modulator for modulating the state of polarization of said optical signal at said data modulation frequency.

29. The apparatus of claim 28 wherein said polarization modulator is configured for modulating the state of polarization of said optical signal such that an average value of the state of polarization over a modulation cycle is substantially equal to zero.

30. The apparatus of claim 28 wherein said polarization modulator is coupled to said data modulator through said amplitude modulator.

31. The apparatus of claim 28 wherein said polarization modulator modulates the state of polarization by tracing the polarization of said optical signal along at least a portion of a Poincare sphere.

32. The apparatus of claim 28 wherein the polarization modulator modulates the state of polarization of the optical signal at said data modulation frequency with a prescribed phase.

33. The apparatus of claim 32 further comprising an electrical variable-delay line coupled to said polarization modulator for selectively varying the prescribed phase.

34. The apparatus of claim 33 wherein said electrical variable-delay line comprises a phase shifter.

35. An apparatus for transmitting an optical signal comprising:

an optical signal source configured to generate an optical signal;

a data modulator coupled to said optical signal source and configured to modulate data on said optical signal at a data modulation frequency using a DPSK modulation format; and

an amplitude modulator coupled to said optical signal source and configured to provide a periodic modulation of the intensity of said optical signal at an amplitude modulation frequency phase locked to said data modulation frequency.

36. The apparatus of claim 35 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 20%.

37. The apparatus of claim 35 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 40%.

38. The apparatus of claim 35 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 60%.

39. The apparatus of claim 35 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 80%.

40. The apparatus of claim 35 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth equal to about 100%.

41. The apparatus of claim 35 wherein said amplitude modulator is coupled to said optical signal source through said data modulator.

42. The apparatus of claim 35 wherein said amplitude modulator is configured to impart said periodic modulation in response to a sinusoidal drive signal.

43. The apparatus of claim 35 wherein the amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal with a prescribed phase.

44. The apparatus of claim 43 further comprising an electrical variable-delay line for selectively varying the prescribed phase.

45. The apparatus of claim 35, said apparatus further comprising means for selectively adjusting a depth of said periodic modulation of the intensity of said optical signal.

46. The apparatus of claim 35 further comprising a phase modulator configured to provide optical phase modulation to said optical signal.

47. The apparatus of claim 46 wherein said phase modulator is configured to provide said optical phase modulation at a phase modulation frequency that is phase locked to said data modulation frequency.

48. The apparatus of claim 47 wherein said phase modulation frequency is equal to said data modulation frequency.

49. The apparatus of claim 46 said apparatus further comprising means for selectively adjusting a level of said optical phase modulation.

50. The apparatus of claim 46 further comprising an electrical variable-delay line for selectively varying the phase of said optical phase modulation provided by said phase modulator.

51. The apparatus of claim 35 further comprising a polarization modulator coupled to said data modulator for modulating the state of polarization of said optical signal at said data modulation frequency.

52. The apparatus of claim 51 wherein said polarization modulator is configured for modulating the state of polarization of said optical signal such that an average value of the state of polarization over a modulation cycle is substantially equal to zero.

53. The apparatus of claim 51 wherein said polarization modulator modulates the state of polarization by tracing the polarization of said optical signal along at least a portion of a Poincare sphere.

54. The apparatus of claim 51 wherein the polarization modulator modulates the state of polarization of the optical signal at said data modulation frequency with a prescribed phase.

55. The apparatus of claim 54, further comprising an electrical variable-delay line coupled to said polarization modulator for selectively varying the prescribed phase.

56. A method of modulating an optical signal for transmission on an optical communication system, said method comprising:

modulating data on said optical signal at a data modulation frequency; and

imparting a periodic amplitude modulation on said optical signal.

57. The method of claim 56 wherein said data is modulated on said optical signal using a DPSK modulation format.

58. The method of claim 56 wherein said periodic amplitude modulation is imparted at modulation depth greater than or equal to 20%.

59. The method of claim 58 wherein said data is modulated on said optical signal using a DPSK modulation format.

60. The method of claim 56 wherein said periodic amplitude modulation is imparted at modulation depth greater than or equal to 40%.

61. The method of claim 56 wherein said periodic amplitude modulation is imparted at modulation depth greater than or equal to 60%.

62. The method of claim 56 wherein said periodic amplitude modulation is imparted at modulation depth greater than or equal to 80%.

63. The method of claim 56 wherein said periodic amplitude modulation is imparted at modulation depth equal to about 100%.

64. The method of claim 56 wherein said periodic modulation is imparted by driving an amplitude modulator with a sinusoidal drive signal.

65. The method of claim 56, wherein said periodic amplitude modulation is imparted at an amplitude modulation frequency phase locked to said data modulation frequency.

66. The method of claim 65 wherein said amplitude modulation frequency is equal to said data modulation frequency.

67. The method claim 56 further comprising selectively adjusting a depth of said periodic amplitude modulation.

68. The method of claim 56 wherein said modulating data on said optical signal is performed before said imparting said periodic amplitude modulation.

69. The method of claim 56 further comprising imparting phase modulation to said optical signal.

70. The method of claim 69 wherein said phase modulation is imparted at a phase modulation frequency phase locked to said data modulation frequency.

71. The method of claim 70 wherein said phase modulation is imparted at a phase modulation frequency equal to said data modulation frequency.

72. The method claim 69 further comprising selectively adjusting a level of said phase modulation.

73. The method of claim 56 further comprising imparting polarization modulation to said optical signal.

74. A transmission system comprising:

a transmitter including:

an optical signal source configured to generate an optical signal,

a data modulator coupled to said optical signal source and configured to modulate data on said optical signal at a data modulation frequency, and

an amplitude modulator coupled to said optical signal source and configured to provide a periodic modulation of the intensity of said optical signal;

an optical transmission path coupled to said transmitter; and

a receiver coupled to the optical transmission path.

75. The system of claim 74 wherein said data source is configured to modulate said data on said optical signal using a DPSK modulation format.

76. The system of claim 74 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 20%.

77. The system of claim 76 wherein said data source is configured to modulate said data on said optical signal using a DPSK modulation format.

78. The system of claim 74 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 40%.

79. The system of claim 74 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 60%.

80. The system of claim 74 wherein said amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth greater than or equal to 80%.

81. The system of claim 74 wherein amplitude modulator is configured to provide said periodic modulation of the intensity of said optical signal at an intensity modulation depth equal to about 100%.

82. The system of claim 74 wherein said amplitude modulator is configured to impart said periodic modulation in response to a sinusoidal drive signal.

83. The system of claim 74 wherein said periodic modulation is provided at an amplitude modulation frequency phase locked to said data modulation frequency.

84. The system of claim 83 wherein said amplitude modulation frequency is equal to said data modulation frequency.

85. The system of claim 74 further comprising:

means for measuring a predetermined characteristic of a received signal received by the receiver;

means for transmitting the predetermined characteristic to the transmitter; and

means for selectively varying the periodic modulation imparted to said optical signal to optimize the value of the predetermined characteristic.

86. The system of claim 85 wherein said data source is configured to modulate said data on said optical signal using a DPSK modulation format.

87. The system of claim 85 wherein said means for selectively varying the periodic modulation comprises means for selectively adjusting a depth of said periodic modulation.

88. The system of claim 85 wherein said predetermined characteristic comprises the signal-to-noise ratio of said received signal.

89. The system of claim 85 wherein said predetermined characteristic comprises the Q-factor of said received signal.

90. The system of claim 74 further comprising a phase modulator configured to provide optical phase modulation to said optical signal.

91. The system of claim 90 wherein said phase modulator is configured to provide said optical phase modulation at a phase modulation frequency that is phase locked to said data modulation frequency.

92. The system of claim 91 wherein said phase modulation frequency is equal to said data modulation frequency.

93. The system of claim 90 said apparatus further comprising means for selectively adjusting a level of said optical phase modulation.

94. The system of claim 90 further comprising an electrical variable-delay line for selectively varying the phase of said optical phase modulation provided by said phase modulator.

95. The system of claim 90 further comprising:

means for measuring a predetermined characteristic of a received signal received by the receiver;

means for transmitting the predetermined characteristic to the transmitter; and

means for selectively varying the phase modulation imparted to said optical signal to optimize the value of the predetermined characteristic.

96. The system of claim 95 wherein said data source is configured to modulate said data on said optical signal using a DPSK modulation format.

97. The system of claim 95 wherein said predetermined characteristic comprises the signal-to-noise ratio of said received signal.

98. The system of claim 95 wherein said predetermined characteristic comprises the Q-factor of the optical signal received by the receiver.

99. The system of claim 74 further comprising a polarization modulator for modulating the state of polarization of said optical signal at said data modulation frequency.

100. The system of claim 99 wherein said polarization modulator is configured for modulating the state of polarization of said optical signal such that an average value of the state of polarization over a modulation cycle is substantially equal to zero.

101. The system of claim 99 wherein said polarization modulator modulates the state of polarization by tracing the polarization of said optical signal along at least a portion of a Poincare sphere.

102. The system of claim 99 further comprising:

means for measuring a predetermined characteristic of an optical signal received by the receiver;

means for transmitting the predetermined characteristic to the transmitter; and

means for selectively varying the polarization modulation imparted to said optical signal to optimize the value of the predetermined characteristic.

103. The system of claim 102 wherein said predetermined characteristic comprises the signal-to-noise ratio of the optical signal received by the receiver.

104. The system of claim 102 wherein said predetermined characteristic comprises the Q-factor of the optical signal received by the receiver.